A SURVEY OF POPULATION PROJECTIONS FOR 2000 A.D. AND IMPLICATIONS FOR CRIME AND SOCIAL TENSIONS

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By K.N. Kabra & N.C. Ganguli

The purpose of this note is to survey the attempts made in various quarters to answer the question: What will be the most probable size and composition of India's population by the end of the present century? At the same time, we shall briefly indicate some of the implications/projected figures for social tensions and crime situation.

The important factors which are responsible for population growth are: fertility, mortality and migration. So far international migration in India has been almost negligible. Nor do there exist much prospect in the coming future for such migration to materialise. Hence only two factors viz. fertility and mortality are taken into account (in the studies covered by us) for projecting population at a future date. Internal migration, however, is an important aspect of reality with strong influence on the rural-urban division of the projected population.

Many projections are available for India's population under different assumptions of fertility and mortality. To begin with, the Expert Committee set up by the Planning Commission* have worked out a series of estimates of popu-

* Office of the Registrar General, India. Report on the Population Projections worked under the guidance of the Expert Committee set up by the Planning Commission under the chairmanship of the Registrar General, India, New Delhi, 1968.

lation size on the alternative assumptions of declining fertility and mortality. It is assumed that the General Fertility rate of 195 remains unchanged upto 1966 and undergoes a percentage decline as follows:

Year	Assumption I	Assumption II	Assumption III	Assumption IV
1966-70	0	5	10	5
1971-75	5	10	15	15
1976-80	15	20	25	25
1981-85	25	25	25	25

The decline accepted in mortality is the same under each assumption. Starting the values of e_0° (life expectancy at birth) at 41.9 years for males and 40.6 years for females for 1951-60 (taken to be centered at 1956) this is supposed to increase by 0.9 years per annum upto 1970, 0.75 years per annum during 1971-80 followed by an annual increase of 0.4 years during 1971-85.

The following table gives the population of India for 1986 under alternative assumptions.

TABLE 1 PROJECTED POPULATION OF INDIA FOR 1986 UNDER ALTERNATIVE ASSUMPTIONS* (in Million)

Age Group	Popu-lation 1961	Population 1986			
		Assumption I	Assumption II	Assumption III	Assumption IV
0-4	72.47	90.30	76.02	63.47	66.90
5-9	57.93	100.40	85.04	71.57	75.46
10-14	49.67	99.30	89.63	79.97	84.27
15-19	42.98	87.98	83.46	79.40	83.46
20-24	37.95	74.47	74.47	74.47	74.47
25-29	34.27	64.68	64.68	64.68	64.68
30-34	30.32	53.31	53.31	53.31	53.31
35-39	25.72	45.20	45.2	45.2	45.2
40-44	21.62	38.50	38.50	38.50	38.50
45-49	18.03	33.28	33.28	33.28	33.28
50-54	14.62	28.78	28.78	28.78	28.78
55-59	11.42	24.2	24.2	24.2	24.2
60-64	8.46	18.90	18.90	18.90	18.90
65-69	5.72	13.96	13.96	13.96	13.96
70-	7.09	17.73	17.74	17.73	17.74
Total	438.27	791.01	747.19	707.44	723.13

* Assumptions I, II and III are given by the Expert Committee set up in 1964 and Assumption IV has been proposed by the Working Group on Annual Estimates of population. The General Fertility rate of 195 remains unchanged upto 1966 and undergoes a % decline as shown earlier.

Source: Office of the Registrar General, India. Report on the Population Projections worked out under the guidance of the Expert Committee set up by the Planning Commission under the Chairmanship of the Registrar General, India, New Delhi, 1968.

Of the sets of projections for all India, the Expert Committee recommended the medium set, based on Assumption II, for official purposes. The projected population figure for 1971 was 55,96,22,000 whereas it was 547, 950000 as per census count. Since the difference between the actual population figure (547.9 million) and the projected population figure (559.6 million) for 1971 is quite significant (11.7 million), it is not desirable to use the projected population figures for any purpose.

The population projections (1971-86) made by the Planning Commission[1] taking the base year population as 547 million in 1971 gives the population for 1986 as 705.2 million.

The assumptions underlying the population projections are given below:

TABLE 2; ASSUMPTIONS UNDERLYING POPULATION PROJECTIONS : 1971-86

Period	Gross fertility rate		Average expectation of life at birth		Birth rate	Death rate	Growth rate
	Decline compared absolute to the previous level quinquennium	(per cent)	males	females	per thousand of population		
1971-76	10	0.167	51.3	49.6	35.57	15.23	20.34
1976-81	20	0.134	53.8	52.6	29.57	12.81	16.76
1981-86	10	0.107	56.0	55.3	24.82	11.14	13.68

Source: Planning Commission, Draft Fifth Five-Year Plan, Delhi, 1973

1. Government of India, Planning Commission, Draft Fifth Five-Year Plan, Delhi, 1973.

Population projections based on the above assumptions are given below:

TABLE 3: POPULATION, ACTUALS FOR 1971 and ESTIMATES FOR 1974, 1979, 1984 and 1986 (IN MILLION)
(As on first March)

Year	Age Group	Males	Females	Total
1971	0-14	116.9	109.7	226.6
	15-34	90.8	87.3	178.1
	35-59	60.7	52.9	113.6
	60+	15.0	13.6	28.6
	Total	283.4	263.5	546.9
1974	0-14	121.8	114.4	236.2
	15-34	98.3	94.3	192.6
	35-59	64.8	57.0	121.8
	60+	16.1	14.5	30.6
	Total	301.0	280.2	581.2
1979	0-14	125.7	118.5	244.2
	15-34	113.0	107.6	220.6
	35-59	72.3	64.7	137.0
	60+	18.5	16.5	35.0
	Total	329.5	307.3	636.8
1984	0-14	122.4	116.4	238.0
	15-34	129.6	122.4	252.0
	35-59	80.5	73.7	154.2
	60+	21.6	19.2	40.8
	Total	354.1	331.7	685.8
1986	0-14	120.1	114.6	234.7
	15-34	136.8	128.6	265.4
	35-59	84.0	77.6	161.6
	60+	23.0	20.5	43.5
	Total	363.9	341.3	705.2

Source: Same as for Table-2.

If the birth rate declines as assumed in the above population projections, this will improve the age structure of the population as indicated below:

TABLE 4: AGE STRUCTURE OF THE POPULATION, ACTUALS FOR 1971 AND PROJECTIONS FOR 1974, 1979, 1984 AND 1986 (As on First March)

	Percentage				
Age Group	1971	1974	1979	1984	1986
0-4	15.8	14.9	13.2	11.2	10.6
5-14	25.6	25.7	25.2	23.6	22.7
15-59	53.4	54.1	56.1	59.2	60.5
60+	5.2	5.3	5.5	6.0	6.2
Total	100.0	100.0	100.0	100.0	100.0

source: Same as for Table-2.

The decline in the share of 0-14 age group from 41.4 per cent of the population in 1971 to 33.3 per cent in 1986 means a welcome reduction in the dependency ratio which will have a beneficial impact on living standards. While the reduction in 0-14 age group may mean increased rate of participation much will depend on how the economy fares with respect to employment. The increase in the 15-59 age group is bound to be relatively heavily concentrated in the lower age groups, especially in the initial periods. These new entrants to the labour market, who may also increasingly migrate to cities, and would have been exposed to a certain amount of education, are a very volatile section of society. Not only

the new environment of cities and the worsening slum-profile in and around the metropolitan and bigger cities will generate problems of social and psychic adjustments, but the failure to obtain stable sources of livelihood or obtaining such sources inadequately in the urban informal and rural urban sectors of the economy may add an altogether more explosive dimension to the problem of orderly adjustment. Thus quite a large part of the growing age-group, particularly 15-25 years age-group, may enter various kinds of underworlds of crime and lumpen proletariat. Inter-mixture of such groups with various kinds of political groups may create further complications. Any planning for law and order and social defence will have to carry out depth-studies based on alternative socio-economic and political assumptions in order to acquire planned capacity to be able to deal with the emerging situation.

Urbanisation

The rising trend of urbanisation is expected to continue over the perspective period. The natural growth of urban population will be supplemented by migration from the rural areas. The estimates of urban growth are given in Table 5.

TABLE 5: URBAN POPULATION IN MILLION, ACTUALS FOR 1971 AND ESTIMATES FOR 1974, 1979, 1984 AND 1986 (As on first March)

(in million)

Year (1)	Urban Population (2)	Total Population (3)	Col. (2) as per cent of Col. (3) (4)
1971	108.9	546.9	19.9
1974	119.9	581.2	20.6
1979	139.5	636.8	21.9
1984	160.2	685.8	23.4
1986	168.8	705,2	24.0

Source: Same as for Table-2.

The absolute increase in the urban population over the perspective period works to 59.9 million. That is to say, in the year 1986 as much as over half the 1971 urban population will be added to our urban population. Projections about growth in various size-classes of cities are very much more problematic because it is largely a function of clear-cut policy in this connection and effective implementation. As almost a second Urban India is likely to be added during this period, the chances of existing bulging metropolices attracting a fairly large proportion of this increment can only be discounted to the extent conscious policy-inputs are introduced. The problems of over-crowding, worsening urban living conditions and landscape, and consequent tensions and conflicts are not so much a function of urban growth as of its composition

between various classes of cities. The larger the share of the bigger cities, it can safely be said, the greater the social external diseconomies of urbanisation are likely to be. Thus increased urbanisation as such must not be decried for worsening social balance and tranquility, it is much more a function of top-heavy urban growth with poor economic and infra-structure base in the smaller towns and medium cities. However, what is obvious on the basis of past experience is that unplanned urbanisation helps none and creates many problems, including those for law and order administration. Broadly, precise quantitative estimates about the specifics of social unrest, crime and delinquency can be made on the basis of specific empirical studies to throw up data essential for future social defence and orderly society. However, if this urbanisation also happens to be "low income urbanisation", it is likely to entail worsening of both personal and social consumption levels, while it inherently increases the demand for the increment of both. Herein lies the genesis of worsening crime and social delinquency scenarios with concomitant burdens on law and order administration. What it implies is that to the extent planning and economic ministries do not succeed in their avowed objectives, they impose additional, unenviable and strenuous tasks on law and order wings of the administration .

Raghavachari's Projections - 1976-2000

S. Raghavachari has made comprehensive studies[3] on various issues in arriving at such projections. The mortality levels and sex-age specific mortality rates assumed by him for 1961-70 are based on U.N. Model Life Tables and for 2000 conform to the U.N. pattern with the assured e_0° (life expectancy) for that year. As the fertility rates are the most unpredictable of the growth components he has made six sets of assumptions. After 1981, the same level in fertility is assumed under different sets of projections. These projections are presented in Table 6. (These estimates are, in fact, called Registrar General's projections).

Raghavachari feels that the high and low sets of projections broadly indicate the likely range of future population trends in India while the medium set represents the most plausible course of population growth.

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3. Raghavachari, S. "Population Projections, 1976-2001" in Asish Bose et. al. (eds.), Population in India's Developments, 1947-2000, Vikas Publishing House Pvt. Ltd., New Delhi, 1974.

TABLE 6: PROJECTED POPULATION OF INDIA (IN MILLION) AS ON FIRST MARCH UNDER SIX DIFFERENT FERTILITY ASSUMPTIONS

Assumptions*	Sex	1971	1981	1986	1991	1990	2001
High-2	M	283.4	350.0	388.6	431.8	478.5	529.8
	F	263.6	327.5	365.0	406.3	452.2	502.3
	P	547.0	677.5	753.6	837.6	930.7	1032.1
High-1	M		345.3	381.5	421.1	467.7	511.5
	F	-do-	322.9	358.1	396.6	439.1	484.8
	P		668.2	739.6	817.7	903.8	996.3
Medium-2	M		345.3	378.6	412.6	448.7	485.3
	F	-do-	322.9	355.4	388.6	423.9	460.1
	P		668.2	734.0	801.2	872.6	945.4
Medium-1	M		342.8	373.7	404.9	439.1	474.5
	F	-do-	320.5	350.8	381.3	414.7	449.8
	P		663.3	724.5	786.2	853.8	924.3
Low-2	M		335.3	361.1	387.1	411.4	434.5
	F	-do-	313.4	338.7	364.2	388.4	411.9
	P		648.7	699.8	751.3	799.8	846.4
Low-1	M		332.9	356.2	379.5	403.3	426.4
	F	-do-	311.0	334.1	357.0	380.8	404.2
	P		643.9	690.3	736.5	784.1	830.6

* High medium and low sets correspond to a birth rate of around 30, 25 and 20 respectively by 2001.

Source: Raghavachar, S. "Population Projections, 1976-2001" in Ashis Bose et. al. (eds.), Population in India's Development, 1947-2000, Vikas Publishing House, New Delhi, 1974.

/ estimate, As one can see, according to High-2/ in 1986 the population may be 753.6 million (388.6 million males and 365 million females). This is higher than the Planning Commission figure by about 48 million. Even Medium-2 estimate is 734 million, while Low-1 and Low-2 estimate are under 700 million (Low-1 and Low-2 estimates are less than the Planning Commission / by 5.4 million and 14.9 million respectively estimate /). High-2 figure for 2001 is 1032.1 million (529.8 males and 502.3 million females). The Medium-2 figure is 996.3. The NCST panel on futurology[4] found that even if our family planning programmes are a major success, India will have an approximate population of 960 million in 2000 A.D. According to them since 45 per cent of today's population is below 15 years of age and since the average life span is likely to improve considerably it can be expected that about 65 percent of today's population may see the dawn of 21st. century. However, Raghavachari's Low-2 and / and Low-1 estimates at 846.4 million / 830.6 million for 2001 are considerably below the NCST panel's estimates. They mark a sort of minimum limits to which the population may grow. Probably these estimates correlate to very high development profile combined with very successful family planning based on the most effective contraceptive, viz. socio-economic development.

Coming to urban rural proportions, Raghavachari assumes that in the coming years with the intensification

4. Department of Science and Technology, NCST Panel on Futurology, An Outlook for India's Future (2000 A.D.)

of the development programmes, there willbe greater scope for migratory movements. Hence he assumes that by 2001 A.D. about 90 per cent of the population would become urban. Taking Medium-2 projection for population growth, the rural-urban proportion worked out by him for various years are given in Table 7.

TABLE 7: PROJECTED URBAN AND RURAL POPULATION (IN MILLION)

Year	Population			Urban Population			Rural Population		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
1991	412.61	388.57	801.19	108.61	98.48	205.09	304.00	292.08	596.08
1996	448.67	423.88	872.55	126.23	113.11	239.34	322.47	310.77	633.24
2001	485.32	460.06	945.38	146.19	132.12	278.31	339.12	327.44	667.06

Source: Same as for Table 6.

One can see that the urban India of 2001 will be of nearly 28 crore people. Its implications for social, economic and political transformation can well be imagined, particularly in view of very high (nearly universal) level of literacy & big expansion of higher education in the urban centres. What we have said earlier with respect to the size-class distribution of the urban population among various cities applies with greater force to these longer period projections.

Looking at the age composition based on Medium-2 projection one get the following picture in Table 8:

TABLE 8: AGE COMPOSITION OF POPULATION IN 1971 AND 2001 (IN MILLION)

Age Group	Population in 2001				Population in 1971	Percentage of 1971 Total
	Male	Female	Total	Percentage of 2001 Total		
0-14	154.33	146.29	300.62	31.80	226.66	41.44
15-29	129.31	123.06	252.38	26.70	141.71	25.91
30-59	165.01	155.71	320.72	33.92	149.95	27.41
60+	36.05	34.99	71.65	7.58	28.64	5.24
Total	485.32	460.06	945.38	100.00	546.96	100.00

Source: Same as for Table 6.

From the Table 8 above, one can see that as compared to 41.4 per cent in 1971, the proportion of 0-14 age-group in 2001 is likely to come-down to 31.80 per cent. This contrasts with the expected increase in the 15-59 years age group from 53.32 in 1971 to 60.62 in 2001. Similarly, a somewhat larger increase is expected in the relative proportion of 30-39 years age-group, from 27.41 to almost 34 per cent.

The significance of a fairly big jump in the number of people in 15-59 years age-group must be noticed. It means the relative number of new-job-seekers (or, those looking for productive work and income opportunities) will register a big increase. Since employment is a function not only of

the rate of growth of the economy but also of its structure (that is, sectoral, regional and technical), pattern and extent of urbanisation etc. Here we assume away the complications which may arise from lack or otherwise of employment opportunities. These, we will discuss separately when the projection for the economy as a whole is discussed. Here we propose to point out only those implications of the increment of 15-29 age-group which may, broadly, be considered independent of employment prospects. This is because in a dynamic setting, when rural-urban balance, occupational structure, literacy rate, life expectation at birth, role and status of women, marriage age, migration pattern to cities, level and nature of technology etc. are to undergo big changes, the life style of the people, their inter-personal and social behaviour, their values, aspirations and attitudes are also bound to undergo a process of transformation. The socio-economic changes will affect the extent of disparities - social, economic and political. Different degrees of disparities, which are a function of different kinds of policy-mixes and institutional patterns, will go toward generating different kinds of social values, norms, attitudes, relationships and groupings.

Such changes will have direct bearing on the incidence of crime and typology of crimes. If formal economic opportunities do not keep pace with the growth of needs in

this respect, informal economic activities will be devised by people in order to survive. How far do these informal activities which enable people to live and earn their living are sanctified by law and social custom and are in keeping with healthy community life cannot be easily predicted. What can be said, however, is that not all informal activities can be legal and conducive to social well being as opposed to individual welfare.

Thus a chasm will inevitably develop between what is practiced by people under the weight of socio-economic, political and psychological considerations and what the ruling coalition in the society is prepared to accept and sanctify. Depending on procedures for bridging the gap between defacto and de-jure socially-acceptable activities and vocations, there will be a transitional phase in which apparently illegal activities may be informally accepted or tolerated. That is to say, crime itself is a dynamic concept and working out crime incidence and pattern simply by extrapolating the prevailing pattern may not be useful. For example, what is considered illegal occupation of private and/or public lands, presently, may probably be tolerated at a future date as the only way to redistribute lands which the law cannot redistribute owing to faulty and incomplete land-records and perceptible and/or imperceptible legitimisation of benami transactions.

Urbanisation, migration, pattern of family life, growth of social security, development of cohesive social life, recreation facilities, improvement in the housing situation, the rate of women's participation in work force, development of cultural values concerning man-woman relationship (through economic, social and communication channels), changes in marriage practices etc. are intimately limited with the extent of crime, especially among the people in the age group 15-29. These people will be born and brought up during a period of intense social change, when traditional norms about command, authority, customs etc. will be in the process of change. Meanwhile if the voting age is reduced to 18 years,[5] the political weight of this age-group is likely to increase more than proportionately because the literacy rate, social consciousness, the extent of political mobilisation (through educational institutions and mass media) is likely to be greater among these sections. Even the new forms of informal economic activities (whether "legal" or "illegal", but mainly "informal") are likely to be explored by this age-group to a greater extent owing to the fact that they will be at the entry points of the labour market. Therefore, despite the complex nature of forces

5. A futurological study by F.A. Mehta (Economy, Macmillan, Delhi, 1976), which is generally taciturn about institutional predictions, considers this change quite likely; the voting age, according to him, may well be lowered to 16.

influencing crime and social tensions, atleast it can be said that the age-group 15-29 years is a very sensitive and intensely crime-prone age-group, just as the constructive potential of this age-group is also immense if appropriate steps are taken to chanellise their energies through measures like, e.g., compulsory national service for the youth.

Some of the social forces operating at the moment will have particularly sharp impact on the social behaviour of the persons in the age group 15-29. If we assume (and with good justification) that the current trends towards nuclear family, worsening housing shortage, large number of single young males in urban centres, growth in the number of educated working women, increasing place of sex and violence in films and popularly read books and magazines are likely to continue or even become intensified, then one can infer worsening crime scenario, more particularly if social security measures are not strengthened to replace the loss of security caused by the break-up of extended families and popularisation of small-family norms. Furthermore, the age-group 15-29 is quite prone to political mobilisation. It can be reasonably assumed that in course of time political work among this age-group is likely to increase, bringing in rural and small-town growth in the orbit of political activities. Coupled with increasing political

polarisation and intensifying political rivalries in the country, it may be expected that political unrest may become rampant in this age-group. Such unrest may have its occasional outbursts, creating law and order situations. Hence, the increase in the proportion of population in the age-/15-29 group/ from 1971 to 2001 is a development pregnant with deep social repercussions, imposing difficult tasks for planning law and order administration. The sex-ratio (with about 51.2 per cent males and 48.8 per cent females) will create additional complications, though it may not be considered particularly adverse in view of past imbalance.

However, in so far as there is likely to be sizeable /age-group 0-14, reduction (about ten per cent) of population in the /, the dependency ratio will go down. This will mean an increase in the proportion of active-members in a family and hence improvement in the economic situation of a family. This may mean better education, health, nutrition and living conditions for a family (particularly if it has more than one earning member) with resulting easing of tensions and reduction in crime-propensity.

From the foregoing, it may be inferred that,

a) Change in the proportion of population in the age-group 15-59 is a very significant development correlated to many socio-economic changes.

b) The age group 15-59 is very sensitive and volatile age-group and, depending on the nature of social, economic and political developments, it will play an important role which will have serious implications for law and order administration.

c) Development and growth of informal occupations will have important bearing on social tensions and incidence of crime.

d) Reduction of voting age to 18 in the context of increase in the proportion of population in age group 15-50 / and / their potential political behaviour is a significant variable for its social tranquility implications.

e) A short list of variables impinging on the potential behaviour pattern of persons in the age 15-59 will include nature and extent of urbanisation, extent of break-up of extended families, development of alternative channels of social security, marriage age and styles, women's rate of participation in the economy, growth and pattern of education, housing situation, development of community facilities, cultural norms and value-system, etc. The critical significance of growth or otherwise of employment or productive work opportunities cannot, of course, be gainsaid.

f) The increase of population in the age / group 15-59 / coupled with sizeable decline of population in / the age-group 0-14 / will bring about sizeable reduction in dependency ratio, thereby improving levels of family income provided employment situation does not worsen. If such a thing happens, it will work towards ~~[illegible]~~ reducing socially delinquent behaviour.

Ambannavar's Projections

On commission from the Ford Foundation in their Second India series of studies, Jaipal P. Ambannavar[6] uses fairly sophisticated methodological devices like the componential method of population projections in the style of Tomas Frejka . On the basis of independent comparable estimates of the trends in mortality and fertility in India since Independence, his study provides its own benchmarks from which to project India's demographic structure.

He has computed assumed expectation of life at birth (e°_{o}) in India from 1971 to 2051 for the terminal and number of intervening years. The results are presented in Table 9 from 1971 to 2001. It shows that while over-all e°_{o} is likely to be 64.53, it is expected to be 64.90 for males & 64.15 for females. The difference between male and female e°_{o} should be marked. While in 1971 there is a difference of over two years in their e°_{o}, in 2001 it is expected to be a matter of mere months. As e°_{o} of women reflects a big enough change in the social and economic status of women, its implications for family life, job opportunities, work force composition etc. are significant. Its impact on crimes against women can also be expected to be favourable,

6. Ambannavar, Jaipal P., Second India Studies: Population, Macmillan Company of India Ltd., Delhi, 1975.

i.e. the incidence of such crimes may go down, because it reflects an improvement in their social and economic status as a result of which women may themselves be expected to provide social defence.

TABLE 9: ASSUMED FUTURE COURSE OF e°_{0} IN INDIA 1971-2001

Year	Expectation of life at Birth e°_{0} for		
	Males	Females	Persons
1971	49.90	47.55	48.75
1976	52.90	50.55	51.75
1981	55.90	53.55	54.75
1986	58.40	56.45	57.45
1991	60.90	59.35	60.14
1996	62.90	61.75	62.34
2001	64.90	64.15	64.53

Source:- Ambannavar, Jaipal P. Second India Studies: Population, Macmillan Company of India Ltd., Delhi, 1975.

On the basis of a detailed examination of the various inputs which go into the determination of the gross reproduction rate (GRR) Ambannavar gives three estimates of percentage decline in GRR and the corresponding course of GRR in future. These estimates are presented in Table 10.

TABLE 10: DECLINE IN G.R.R. AND FUTURE COURSE OF G.R.R.

Period	Percentage decline in GRR			Future Course of GRR			
	Low	Medium	High	Year	Low	Medium	High
1971-76	8.6	6.5	6.25	1971	2.667	2.667	2.667
1976-81	9.0	7.0	6.00	1976	2.438	2.494	2.500
1981-86	10.5	7.5	5.75	1981	2.198	2.307	2.340
1986-91	12.5	8.0	5.50	1986	1.918	2.107	2.187
1991-96	10.0	7.5	5.25	1991	1.585	1.894	2.040
1996-01	7.0	6.5	5.00	1996	1.318	1.694	1.900
2001-06	-	5.5	4.75	2001	1.131	1.521	1.676

Source: same as for Table 9.

On the basis of these estimates three sets of estimates of population are worked out. These results are given below in Table 11.

TABLE 11: GROWTH OF INDIA's POPULATION ACCORDING TO THE LOW, MEDIUM & HIGH PROJECTIONS

Year 1st April	Population in Millions		
	Low	Medium	High
1971	548	548	548
1976	611	612	612
1981	678	683	683
1986	747	759	762
1991	814	839	849
1996	875	921	942
2000	926	999	1035
2001	928	1003	1040*

* Note: These "estimates" can be compared with those contained in futurological studies in the West. Herman Kahn & Anthony J. Weiner in The Year 2001: A Framework for Speculation on the next 33 years, put three estimates of India's population, viz., 914, 988 and 1128 millions. Fremont Felix in World Markets of Tommorrow makes medium forecast of 922 million Indians in the year 2000.

India's population

Source: Same as for Table 9.

* in the year 2000

As can be seen, according to medium projection, the population at the end of the century(1003 millions) will be a little more than four times the population at the beginning of the century. Projecting beyond 2001 it is said that it will attain twice its 1971 level in early 2007. Bringing out the dimensions of the increment, it is said that between 1971 and 2000, India will add as much as the current populations of the United States and the U.S.S.R. combined. The low projection gives 7.3 per cent lower (928 million) and the higher one gives 3.6 per cent higher (1040 million) figures for the end of the century population. With 1971 as base, the medium projection gives a population index of 183, with low and high being 169 and 190 respectively. During 1961-71 the rate of population growth was 2.2 per cent. The projection presented above yield a growth rate of 1.5 per cent at the turn of the century.

, The number of males per thousand females, which stood at 1075 in 1971, will according to the medium, low and high projections will become 1081, 1080 and 1080. The change being so marginal, not much may be read off from it.

The figures about the projected age-composition are presented in Table 12.

TABLE 12: TRENDS IN PERCENTAGE BROAD AGE DISTRIBUTION OF POPULATION

1971 to 2001

Period	Low			Medium			High		
	0-14	15-59	60+	0-14	15-59	60+	0-14	15-59	60+
1971	41.38	53.28	5.14	41.58	53.28	5.14	41.58	53.28	5.14
1981	39.14	55.38	5.48	39.53	55.02	5.45	39.61	54.96	5.44
1991	34.94	58.71	6.35	36.77	57.07	6.16	37.49	56.42	6.09
2001	29.7	63.25	7.68	33.24	59.65	7.11	35.30	57.85	6.85

Source: Same as for Table 9.

The population shows signs of aging as evident from the proportion of population in the older age-groups. The aging is slower in the high projection and faster in the lower projection. However, the lower projection entails rising proportion of population inthe working age groups. This is a blessing if population can be used as the most powerful "resource". On the other hand, slower growth profiles in the face of this trend will mean growing unemployment, frustration, poverty and unrest. If the projections are a means of what Dr. S.C. Seth calls "crisis analysis"[ø], it is clear that the trend in the growth of the size of the work-force is a clear signal for utmost priority to employment generation policies, which are now increasingly regarded as linked with redistributive policies.

ø. Department of Science and Technology, N.C.S.T. Panel on Futerology, An Outlook for India's Future (2000 .A.D.).

Another way of looking at these age-group figures is by way of finding out the "Dependency Load" in the economy i.e. the number of persons in the age group 0-14 and 60+ per thousand persons in the age-group 15-59. This ratio in 1971 was 87.7. As a result of rise in the proportion of persons in the middle age group (15-59), this ratio is expected to decline. According to 'medium' projections, in 2001, it may come down to 67.7, while 'low' and 'high' projections give the figures of 58.1 and 72.7, respectively. This is a change which is welcome from the point of its likely social, economic and political impact. However, the increase in the share of this age-group also implies an increase in the percentage of females in the reproductive age-group (15-49).

In the year 2000, on the basis of the medium projection, this percentage may go up from 47.47 in 1971 to 52.19 in 2000. It impact on population growth can be mitigated by greater acceptance of small family norm and greater female participation in work force.

A large number of other estimates/projections are also available about the general demographic picture as well as its specific aspects. We have surveyed some important projections. About urbanisation many projections have been made.

In World Bank Atlas, 1974, U.N. Urban-Rural Projections from 1950-2000 (medium tempo with medium variant) have been given. In these figures the projections made for India show that in 1975, India's likely rural population and urban population were 488.7 millions and 132.4 millions respectively. This was expected to become 354.9 millions in urban and 748.8 millions in rural area in the year 2000 i.e., a total population of 1103.7 million. It means that they expect the percentage of population in urban area to be 21.3 in 1975 and 32.2 in 2000. According to U.N. City Projections (medium tempo, medium variant), December 1974, Calcutta and Bombay are likely to increase their population from 8.1 and 7.1 millions in 1975 to 20.4 and 19.8 millions in 2000. With the current chaos, degradition and social tensions at the levels at which they are, one may well imagine the deadweight produced by such megapolitan explosions in future, The megapolitan explosion (with about a dozen metropolitan centres) is among the most important factors influencing the extent of social unrest and social delinquency. This is significant from the point of view of police administration in a metropolitan area owing to optimum size of a police district, if for no other reason. But break-up of extended families, pressure on organised sector employment opportunities, geographical concentration of industries, increased female

participation rate, increased proportion of higher age-groups in total population, new technological developments, pressure on transport and communication network with attendant increase in psychological tensions, increased number of scientific instruments and consumer durables in the consumption basket of the well-to-do and demonstration effect generated by their skewed distribution, increased social distance between the rural and the urban areas, etc. are some of the facets of the future we can obtain by extrapolating the present trends. Their implications for social tranquility are far from desirable. This methodology of almost linear extra-polation of the present may be weak in its predictive value. But their value in raising just alarm to invite prophylactic action, to invoke energisation of "crisis-management", before crisis actually overtakes us, is unexceptionable. May be, the true proportions of the crisis are projected in a low-key by this methodology. However, the expectation that through genetic control and psychotherapy one may be able to cope with the coming crisis of crimes etc. in future may not only be utopian but in sacrificing the alternative of social restructuring and development, it is far less desirable too.

In surveying these projections, we have noted the basis for such wide variations among the various guess-estimates. Their methodology, assumptions, policy-perspectives etc. are widely different. Very few are informed of a clear and consistent policy perspectives. Therefore,

despite the plathora of estimates which are available, a specific policy planning and perspective generating agency must clearly spell out crucial policy parameters (in fact a set of alternative policy parameters in order to find out their implications) and get their implications for various demographic dimensions worked out. However, the availability of a lot of such work facilitates the task of introducing further refinements and making them suitable for specific areas of policy planning. Even reconciliation of these projections by comparing and contrasting the various assumptions need a very detailed analysis. But certainly such an analysis can be immensely useful because it will have to make explicit the alternative options which are available. Needless to say, the policy pay-off of such an exercise will be of immense practical significance.

Let us summarise the main conclusions of the Report:

(i) The projected population of India in different years according to various estimates is as follows:

Source of Estimates	1986	2001
	(in millions)	
(i) Registrar General of India I		
Assumption I	791.01	-
Assumption II	747.19	-
Assumption III	707.44	-
Assumption IV	723.13	-
(ii) Planning Commission	750.20	-
(iii) Raghavachari (Registrar General of India II)		
High 2	753.60	1032.10
High 1	739.60	996.30
Medium 2	734.00	945.40
Medium 1	724.50	924.30
Low 2	699.80	846.40
Low 1	690.30	830.60
(iv) Ambannavar		
Low	747.00	928.00
Medium	759.00	1003.00
High	762.00	1040.00
(v) World Bank Atlas	-	1103.70 (in the year 2000)
(vi) Department of Science & Technology, (National Committee on Science & Technology)		960.00 (in the year 2000)

It may be observed that the estimates about the population of India in the year 2001 vary between 83.06 crores & 104.00 crores. However, medium 2 estimate by Raghavachari viz. a population figure of 94.50 crores may be used as the medium-range forecast; it is close to NCST figure of 96 crores.

(ii) The population in the age group 0-14 is likely to decline from 41.4 per cent in 1971 to 33.3 per cent in 1986. While the reduction / in the age-group 0-14 may mean increased rate of participation much will depend on how the economy fares with respect to employment.

/ of population

(iii) The / population in the age-group 15-59 is expected to increase from 53.4 per cent in 1971 to 60.5 per cent in 1986. These new entrants to the labour market, who may increasingly migrate to cities, and would have been exposed to certain amount of education, are a very volatile section of society. Not only the new environment of cities and the worsening slum-profile in and around the metropolitan cities will generate problems of social and psychic adjustments, but the failure to obtain stable sources of livelihood or obtaining such sources inadequatly in the urban informal and rural urban sectors of the economy may add an altogether more explosive dimension to the problem of orderly adjustment. Thus quite a large part of the growing age-group, particularly the age-group 15-25 may enter various kinds of underworlds

/ percentage of

of crime and lumpen proletariat. Inter-mixture of such groups with various kinds of political groups may create further complications. Any planning for law and order and social defence will have to carry out depth-studies based on alternative socio-economic and political assumptions in order to acquire planned capacity to be able to deal with the emerging situation.

(iv) The urban population in India will increase from 108.9 million in 1971 to 168.8 million in 1986. That is to say, in the year 1986 as much as over half the 1971 urban population will be added to our population. The growing urbanisation is generally accompanied by problems such as overcrowding, worsening living conditions, delinquency, tensions of various kinds, slum formation etc. The increased urbanisation as such must not be decried for worsening social balance and tranquility, it is much more a function of top-heavy urban growth with poor economic and infra-structure base in the smaller and medium cities. The precise quantitative estimates about the specifics of social unrest, crime and delinquency can be made on the basis of specific empirical studies to throw up data essential for future social defence and orderly society. However, if this urbanisation also happens to be "low income urbanisation", it is likely to entail worsening of both personal and social

consumption levels, while it inherently increases the demand for the increment of both. Herein lies the genesis of worsening crime and social delinquency scenarios with concomitant burdens on law and order administration. What it implies is that to the extent planning and economic ministries do not succeed in their avowed objectives, they impose additional, unenviable and strenuous tasks on law and order wings of the administration.

(v) The percentage of population in the age-group 15-59 is likely to increase from 53.32 in 1971 to 60.62 in 2001 according to Raghavacharis estimate. The significance of a fairly big jump in the number of people in the age-group 15-59 must be noticed. The increase of population in the age-group 15-59 may lead to following conclusions: (a) Change in the proportion of people in the age-group 15-59 is a significant development correlated to many socio-economic changes. (b) The age-group 15-59 is very sensitive and volatile age-group and depending on the nature of social, economic and political developments, it will play an important role which will have serious implications for law and order administration. (c) Development and growth of informal occupations will have important bearing on social tensions and incidence of crime. (d) Reduction of voting age to 18 in the context of increase in the proportion of population

/ of persons aged 15-59

in the age group 15-59 and their potential political behaviour/ is a significant variable for its social tranquility implications. (e) A short list of variables impinging on the potential behaviour pattern of the population in the age group 15-59 will include nature and extent of urbanisation, extent of break-up of extended families, development of alternative channels of social security, marriage age and styles, women's participation in the economy, growth and pattern of education, housing situation, development of community facilities, cultural norms and value - system etc. The critical significance of growth of otherwise of employment or productive work opportunities cannot, of course, be gainsaid. (f) The increase of population in the age-group/ 15-59 coupled with a sizeable decline in the 0-14 age group (the population in the age group 0-14 can be expected to decline from 41.44 in 1971 to 31.80 in the year 2001) will bring about sizeable reduction in dependency ratio, thereby improving levels of family income, provided, of course, that employment situation does not worsen. If such a thing happens, it may work towards reducing socially delinquent behaviour.

(vii) According to Ambannaver's projection, the expectation of life at birth for males will increase from 49.90 years in 1971 to 64.90 years in 2001 while for females it will increase from 47.55 years to 64.15 years in the same period.

The difference between males and females expectation of life at birth should be marked. While in 1971 there is a difference of cover two years in their life expection, in 2001 it is expected to be a matter of a few months. The life expectation for females reflects a big enough change in their social and economic status of women, its implications for family life, job opportunities, work force composition etc. are significant. Its impact on crimes against women can also expected to be favourable i.e. the incidence of such crimes may go down, because it reflects an improvement in their social and economic status as a result of which women may themselves be expect expected to provide social defence.

(viii) According to U.N. City Projections, Calcutta and Bombay are likely to increase their population from 8.1 and 7.1 millions in 1975 to 20.4 and 19.8 millions in 2000. With the current chaos, degradation and social tensions at the levels at which they are, one may well imagine the deadweight produced by such megapolitan explosions in future. The megapolitan explosion is among the most important factors influencing the extent of social unrest and social delinqency. This is significant from the point of view of police administration in a metropolitan area owing to the optimum size of a police district, if for no other reason.

But break-up of extended families, pressure on organised sector employment opportunities, geographical concentration of industries, increased female participation rate, increased proportion of higher age-groups in total population, new technological development, pressure on transport and communication network with increase in psychological tensions, increased number of electronic gadgets and consumer durables in the consumption basket of the well-to-do and demonstration effect generated by their skewed distribution, increased social distance between the rural and the urban areas etc. are some of the facets of the future we can obtain by extrapolating the present trends.